

Appendix B

PROPOSED TECHNICAL STANDARDS AND GUIDELINES FOR ELECTRONIC FILING IN THE UNITED STATES COURTS

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Proposed Technical Standards

The following proposed technical *standards* are intended as mandatory requirements which courts choosing to permit electronic filing must implement in order to comply with the amended rules. These standards are phrased as functional requirements that any electronic filing system must meet; there may be a variety of technical implementations by which each functional standard may be met. These standards focus primarily on ensuring the integrity of the court record.

Document and File Format Standards

- S1. All documents filed electronically must be capable of being printed as paper documents without loss of content or appearance.

Commentary

It is important to be able to preserve and reproduce faithfully both the content and the appearance of electronically submitted documents. Printed documents will continue to be used regularly in the conduct of court business, so it must be possible to provide an accurate printed reproduction of any electronic document. Furthermore, it may be necessary to convert electronic documents to paper (or film equivalent) for purposes of archiving (see Standard S2). To ensure the ability to create a faithful reproduction of the original, care must be taken to preserve document appearance (formatting) during the electronic submission process. Color documents may present special concerns, as it is currently expensive to print color documents and difficult to maintain color fidelity in the printing process.

- S2. Electronic documents must be stored in, or convertible to (without loss of content or appearance), a format that can be archived in accordance with specifications set by the National Archives and Records Administration.

Commentary

The National Archives currently accepts paper documents, images as microfiche or microfilm, and ASCII text on magnetic tape. The National Archives is currently considering how to archive electronic documents in other formats (such as Portable Document Format, described in Guideline G1 below). See section III.D in the Background Discussion appendix for further discussion on archival requirements.

- S3. Electronic documents must be retained in the electronic format in which they are submitted. However, documents submitted to the court in paper form may subsequently be imaged to facilitate the creation of an electronic case file.

Commentary

It is important to be able to preserve and reproduce faithfully both the content and the appearance of electronically submitted documents. Post-submission conversion of electronic documents to different formats (e.g., from one word processing internal format to another, or to an “interchange format”) should be avoided because it can change the content and appearance of the electronic document. Even changing printers for a WordPerfect document changes its appearance. A proposed document format guideline for electronic submissions is the Portable Document Format (see Guideline G1); documents filed in this format will retain their content and appearance without requiring conversion.

While direct electronic submission is the preferred way to capture documents in electronic form, courts will still need to accommodate paper submissions as a component of a comprehensive electronic case files system. To facilitate the creation of a single electronic case file, it will be necessary to convert paper submissions to electronic form. While document imaging is relatively expensive and does not provide the advantages of direct electronic submission (see Guideline G5), limited use of imaging for the storage of documents originally filed as paper may be beneficial, when combined with other electronic filings, to maintain a single electronic case file. A paper document can generally be imaged in a way which avoids loss of content or appearance. It should be noted, however, that conversion of an imaged document to text (such as through optical character recognition, or OCR) introduces errors, and is acceptable only as a means to create searchable text from document images, not for retaining archivable records; in such a use, the corresponding image (or the paper original) must be retained for archival purposes.

- S4. Every implementation of electronic filing must accommodate submission of non-electronic documents or exhibits (although such non-electronic filings may require court permission).

Document and System Security Standards

- S5. A mechanism must be provided to ensure the authenticity of the electronically filed document. This requires the ability to verify the identity of the filer, and the ability to verify that a document has not been altered since it was filed.

Commentary

The simplest approach to ensure filer identity and document integrity is to store electronic filings in a restricted-access file system (e.g., NetWare or Unix) requiring login and password. These systems will record file creation and modification (if any) times. For implementations permitting submissions via electronic mail, it should be noted that an e-mail address can be forged, so additional mechanisms, such as a PIN password, are required to authenticate the identity of the filer. A more comprehensive solution would be to base the electronic filing system on a digital signature technology (such as public-private key encryption), which can be used both to authenticate filer identity and to ensure

the integrity of a document's content. Note, however, that the use of a digital signature technology may make the archiving process significantly more complex (see Guideline G7).

- S6. If a court implements an interactive electronic filing process, the court must control interactive access to the electronic filing system via a user authentication process. When an electronic communication channel is used, the login process must be secured via use of a telephone connection directly to the court, a secure communications channel, or other secure means.
- S7. Media capable of carrying viruses into court computers (e.g., floppy disks and electronic mail) must be scanned for computer viruses prior to processing.
- S8. It is necessary to isolate access to computers used for electronic filing from access to other court networks and applications.

Commentary

The public should not be permitted direct access to internal court networks or computers upon which court operations are performed. One way to isolate Internet web sites that may be used for electronic filing is to use a commercial Internet firewall product. Similar security precautions should be taken for other electronic filing implementations.

- S9. Computer systems used for electronic filings must protect electronic filings against system and security failures during periods of system availability. In addition, they must provide normal backup and disaster recovery mechanisms.

Commentary

Several methods are available to protect against loss of electronic filings during periods of system availability: (1) electronic filings can be written to isolated media (e.g., magnetic tape) frequently during the day; (2) electronic filings can be copied to another computer system frequently during the day; or (3) a continuous register of information can be printed identifying the submission and submitter of each filing. The latter method would allow a court to request re-submission by the filer in the event of a system failure. Note that, for courts wishing to maximize the availability of electronic filing services, the period of system availability (i.e., the "work day") may be nearly 24 hours.

Electronic Filing Process Standards

- S10. All electronic document submissions must generate a positive acknowledgment that is given to the filer to indicate that the document has been received by the court. The positive acknowledgment must include the date and time of the document receipt (which is the court's official receipt date/time), and a court-assigned document reference number (e.g., docket transaction number).

Commentary

In addition to providing a document receipt to the filer (which merely acknowledges the receipt of the submitted document), the court may also wish to provide a document validation (e.g., document checksum) by which the filer may be assured that the submitted document was received correctly by the court. Provision of a document validation is optional, but is recommended if digital signature methods are being used, since document validation is a common feature of digital signature technologies.

- S11. Electronic filing systems must provide mechanisms for quality assurance and quality control of the submitted documents and case management data by both the court and the filer.

Commentary

The court may want to review the submission and validate the accuracy of the case management data before accepting and docketing an electronic filing. The filer may need to indicate that a particular document was submitted in error, and offer an additional (new) filing to rectify the error.

- S12. Adequate public access to electronically filed documents must be provided.

Commentary

The records and dockets of the federal courts are public records. Regardless of the electronic filing process that is adopted, adequate public access must be provided to the records so filed. Electronic public access outside the courthouse is recommended using methods such as PACER systems. If a complete electronic case file is maintained (as when a court images any paper submissions and combines them with electronically filed documents to form a single electronic case file), then the public should have access electronically to all documents in the case file, whether or not they were originally submitted in electronic form.

Proposed Technical Guidelines

The following proposed technical *guidelines* are presented as recommendations for experimental use subject to further evaluation. While their use is not required, these guidelines may become candidates for future standards, if they are proven fully capable of meeting judiciary requirements. The guidelines proposed below focus on promoting electronic filing uniformity across the federal courts. Additional technical guidelines may be proposed in the course of testing and evaluating alternative approaches to electronic filing.

Document and File Format Guidelines

- G1. The preferred document format for electronic filings is text in a Portable Document Format (PDF) file (except see Guideline G2 below). Electronic exhibits and images not available in text form should be embedded within the PDF document.

Commentary

The Portable Document Format (PDF) is a widely accepted document exchange standard which provides a rich environment for representation of formatted text documents, including pictorial information, such as images. PDF files can also carry audio and video information. The PDF standard is specified in “The Portable Document Format Reference Manual” by Adobe Systems, Inc., Addison-Wesley Publishing Co., 1993, ISBN 0-201-62628-4, and more recent extensions to the technical specification published electronically via the Internet site www.adobe.com. An inter-agency group within the federal government has recommended that the National Institute of Standards and Technology (NIST) develop a Federal Information Processing Standard (FIPS) for PDF; efforts are also under way to develop national (American National Standards Institute, ANSI) and international (International Standards Organization, ISO) standards for PDF based on this published specification. A variety of companies and universities have created PDF products. A federal government PDF user group is exploring with the National Archives the possibility of accepting PDF-formatted electronic documents as an archival standard. Acceptance of PDF as an archival standard will require long-term stability of the basic PDF specification.

- G2. The preferred document format for the batch submission of bankruptcy petitions, schedules, and claims is the Electronic Data Interchange (EDI) format defined in standard transaction 176 (Court Submission). EDI transactions should comply with approved American National Standard X.12 EDI, and with appropriate Implementation Conventions developed by the Administrative Office of the U.S. Courts.

Commentary

The use of industry-standard electronic data interchange (EDI) formats for data exchange are particularly well suited for automated processing of batch (non-interactive) submissions, as may be filed by computer-to-computer interaction from large creditors filing many bankruptcy claims or sole practitioners filing a bankruptcy petition generated via commercial bankruptcy forms software. Substantial work has been done in creating EDI electronic commerce standards for the specific high-volume bankruptcy transactions noted above. Other common court transactions may also be candidates for future use of EDI standards. For more information on EDI standards and implementation conventions, contact the Administrative Office’s Technology Enhancement Office.

- G3. Electronic documents should carry sufficient case management data to enable the automation of the court’s docketing process. The structured description of court events

as defined in the EDI standard transaction 176 (Court Submission) offers a well-defined reference model for how docket event data might be transmitted, particularly with a batch submission.

Commentary

To provide maximum benefit to the court's document submission process, electronic submissions should carry sufficient case management data to permit the automatic docketing of the filing. If the courts adopt a common, well-defined standard for the submission of case management data, filers will also benefit, since such standards will facilitate the development of value-added products for law offices by commercial software vendors.

The EDI reference model contained in standard transaction 176 can serve as the basis for a common format for the submission of case management data. It contains a syntax of "event-action-qualifier", and a constrained vocabulary for each of these three objects. For example, a particular motion might be categorized as "Pleading - Filed - Motion for Extension of Time". The "words" in this constrained vocabulary are defined for specific applications in draft EDI Implementation Conventions developed by the Administrative Office of the U.S. Courts.

- G4. Hyperlinks embedded within an electronic filing should refer only to information within the same document, or to external documents or information sources which are known to be stable over a long period of time. Hyperlinks should not be used to refer to external documents or information sources which are likely to change.

Commentary

The basic concern here is to preserve the integrity of the record. To preserve the integrity of a document's content, the integrity of external information referenced by hyperlinks must also be ensured. Information sources referred to outside the filed document may change significantly (or even disappear) between the time the document is created, and the time it is reviewed by the court, or archived as a permanent record, or retrieved for historical review some long time later. For example, many Internet web sites change daily, and the long-term stability or availability of document references to such web pages cannot be guaranteed. When the external information changes or disappears prior to review, the intended message of the filer may be invalidated, and the integrity of the record is not preserved. On the other hand, one example of a stable external information source is a database of court opinions, which grows by accumulating new records, but without changing the content of historical records. It is thus reasonable to permit citations to such databases to be embedded as hyperlinks within electronic submissions. Use of such citation hyperlinks would require that the court's electronic case files application include a CALR component which can read and interpret the citation link, and then take appropriate action to retrieve and display the cited material. There are very few other external data sources which offer the same kind of guarantee of long-term stability of content, so hyperlinks to other kinds of external information sources should generally be avoided.

- G5. The use of document images (including facsimile) as the document format for electronic submission is strongly discouraged. Every effort should be made to obtain original documents in a standard electronic format which retains document content and appearance in a compact, text-searchable form.

Commentary

The preferred format for most electronic filings is PDF (see Guideline G1). Images typically require 20 times the storage space of the equivalent text document, which increases submission time, hardware storage costs, and the difficulty of document database backup and recovery. Because of the large file sizes, images are more difficult for court staff and the public to access from remote sites over dial-up telephone lines. Scanning large numbers of documents takes a substantial staff effort. Perhaps most significantly, images are not text searchable, and the conversion to text using optical character recognition (OCR) software introduces significant errors.

If a court uses document imaging in a limited role (as envisioned in Standard S3, to facilitate the creation of a single electronic case file by imaging only those documents submitted to the court in paper form), the following standards are recommended: CCITT (now ITU) Group 4 is the compression method of choice for documents containing largely text and simple graphics; JPEG is the compression method best suited to photographs. Both of these image compression methods can be supported on many commercial software packages with the addition of a TIFF file header; both Group 4 and JPEG are also supported by PDF. A scanning resolution of at least 200 dpi (dots per inch) is recommended.

Communications Guidelines

- G6. An electronic filing system should offer several means of delivery of the electronic documents to the court, for example: via network (Internet or commercial Value-Added Network), dial-up telephone access, floppy disks, magnetic tape, and/or electronic mail.

Document and System Security Guidelines

- G7. Digital signature standards based on public-private key encryption technology may be used both to authenticate filer identity and to ensure the integrity of a document's content.

Commentary

Several competing methods for digital signature are currently being evaluated, but there is as yet no universally accepted standard, nor a clear market-leading product or approach. Furthermore, while digital signature technologies offer excellent mechanisms for authenticating filer identity and validating document integrity, the use of a digital signature technology may make the archiving process significantly more complex. To ensure the long-term ability to read and validate a document, it will be necessary not only to archive the document itself, but also to archive the mechanism for applying and reading the digital signature (or to otherwise ensure the long-term availability of the digital signature

mechanism). These issues will, no doubt, be resolved by the marketplace over time, but the answer is not yet evident.

Electronic Filing Process Guidelines

- G8. Electronic filing systems should support both an interactive filing process and the capability to receive a complete filing submitted using a (non-interactive) batch process.

Commentary

See section I.C in the Background Discussion appendix for an overview of interactive and batch electronic filing processes.

- G9. The court should provide a facility for *pro se* filers to file electronically.

Commentary

To reduce the burden on the court in creating and maintaining a fully electronic case file, it will be necessary to make it easier to get electronic documents from all case participants. This might mean providing a computer at the courthouse and/or in a prison with appropriate software. Private sector services for converting source documents into an appropriate electronic format may be another means by which to enable all filers to participate in electronic filing.